

July 16, 1952

Mr. John Strom *JS*
Country Gentleman
Box 30
Woodstock, Illinois

Dear Mr. Strom:

Mrs. Lederberg and I appreciate your interest in our work, expressed in your inquiry of July 15.

It is fairly common clinical experience that the incidence of bacterial infections resistant to specific chemotherapy has increased substantially after the widespread use of antibiotics. The most recent example of this is in the application of streptomycin in pulmonary tuberculosis, and there are already some reports of therapeutic failures with the new isoniazide drugs, owing to the development of resistant tubercle bacilli. Dr. C. P. Miller of the University of Chicago Hospitals is a well known authority on this subject, and if you wished more information on the clinical aspects of drug resistance you might find it profitable to consult him.

Our research has been designed to define the problem of drug resistance rather than to cope with it. Before we could accomplish the latter aim, it would seem important to develop a clear understanding of the problem. After having demonstrated that drug resistance is a consequence of spontaneous mutations of bacteria, which cannot be prevented, the geneticist can suggest only that antibiotics be used more thoughtfully than they have been. If it is to be administered at all, an antibiotic should be given in adequate doses so that non-resistant bacteria are destroyed as quickly as possible, and so that the natural defences will be able to cope with any small number of resistant mutants. Another approach that is receiving some clinical attention is to use two or more antibiotics in combination. We would expect that a few mutant cells resistant to one drug will be eradicated by the other.

In this laboratory we are not primarily concerned with the applications of fundamental studies, which others are better equipped to advance. The important problem of drug resistance does illustrate the necessity of learning as much as we can about the biology and genetics of bacteria, and this is our objective.

The enclosed reprint may be of interest to you, although it was addressed principally to a technically specialized audience.

Yours sincerely,

Joshua Lederberg
Associate Professor of Genetics